Journal of Equine Veterinary Science 39 (2016) S45–S55

Contents lists available at ScienceDirect

Journal of Equine Veterinary Science

journal homepage: www.j-evs.com

10th IEIDC Abstracts-Parasitology

185
Body development of five Thoroughbred foal generations naturally infected with cyathostomins

C.L.H. Abrahão [1], L.L.D. Castro [1], C.M. Miyazaki [1], U.Y. Yoshitani [1], J. Antunes [2], M.B. Molento*[1,3]
[1] *Federal University of Parana, Laboratory of Parasitic Diseases;* [2] *Sao Jose da Serra Stud, Curitiba, Paraná;* [3] *INCT, National Institute of Science and Technology - Livestock, Brazil*

Most horse breeders are extremely concern about the impact of parasites on the healthiness of their animals. Although parasite control using systemic anthelmintics is very secure, drug resistance has been reported worldwide (Canever et al. 2013; Peregrine et al. 2014). This study aimed to determine the development of Thoroughbred foals related to sex, month and year of birth and parasite faecal egg counts (EPG). Data of five generations (2008-2012) was handled from a horse farm located in the city of Sao Jose dos Pinhais, South of Brazil. The animals were from birth to 18 months old (n=119 foals: 60 males and 59 females). The farm technical team provided monthly data on height and weight of the individuals. The body weight was measured with a mechanical scale and the withers height was measured using a depth measuring tape. For the individual animal EPG records, reports from 2009 to 2012 were used. EPG was performed using a modified McMaster technique (x25). During all the evaluation periods it was observed that females were taller (p=0.0065) and heavier (p=0.0091) than males at birth. Males born in November were lighter than the other animals born in other months (p=0,0002) at the age of six months. At the age of 12 months, females born in July and August were significantly heavier than females born in the other months, and those born in November were lighter compared to the others (p=0.03). EPG was divided in six categories: from 0 to 25, 50 to 100, 125 to 225, 250 to 350, 375 to 500, 525 to 800 and above 800, and the average frequency was 21, 11, 10, 11, 8, 13 and 26%, respectively for all years. There was no correlation of EPG and the other variables, indicating that the presence of high or low EPGs did not interfere with body development. This was possible because of the excellent farming system, which included balanced concentrate food and a high quality alfalfa and pasture. Thus, if EPG values had no influence evidencing anybody development impediment in young horses, we suggest that other phenotypic and/or genotypic diagnostic shall be developed for parasite monitoring when animals are raised in ideal conditions.

References

[1] Canever, RJ et al. 2013. Lack of Cyathostomin sp. reduction after anthelmintic treatment in horses in Brazil. *Veterinary Parasitology* 194 (1): 35-39.

[2] Peregrine, A. et al. 2014. Anthelmintic resistance in important parasites of horses: does it really matter? Veterinary Parasitology 201 (1): 1-8.

157
Insights, experiences and scientific findings of a successful worm control in several European countries and the perspectives for the future

K. Pfister*[1,2], M. Scheuerle [1,3], D. van Doorn [4], E. Osterman Lind [5], M. Stear [6], M. Menzel [7], R. Farkas [8], B.L. Steiner [9], E. Rotenanger [10], H. Hertzberg [11], A. Becher [1,12]
[1] *Comparative Tropical Medicine and Parasitology, LM-University. D-80802 Munich;* [2] *Parasite Consulting GmbH, Wendschatzstrasse 8, CH-3006 Berne;* [3] *Labor Alomed, Oeschlestrasse 77, D-78315 Radolfzell;* [4] *Faculty of Veterinary Medicine, Utrecht University, Utrecht;* [5] *National Veterinary Institute (SVA), Parasitological Diagnostics, SE-751 89 Uppsala;* [6] *Institute of Biodiversity, University of Glasgow, Garscube Campus, Glasgow G61 1QH;* [7] *Pferde- & Kleintierpraxis, Thurmading 2, D-84568 Pleiskirchen;* [8] *Department of Parasitology and Zoology, Faculty of Veterinary Science, Budapest;* [9] *Zoetis Schweiz GmbH, Schärenmoosstrasse 99, CH-8052 Zurich;* [10] *Labor Zentral, Stationsweg 3, CH-6232 Geuense11;* [11] *Institute of Parasitology, Vet-Suissse Faculty, University of Zurich, CH-8057 Zurich;* [12] *dr becher griesbauer gmbh, Hans-Adlhoch-Str. 13, D-94315 Straubing*

It is now well accepted that the system of regularly administered anthelmintic treatments over years (without prior diagnosing, i. e. the so-called “strategic” or “interval-dose” treatment) has significantly contributed to the development and spread of anthelmintic resistance (AR) of horse helminths. The high frequency of AR of small strongyles against Benzimidazoles and partly also against Tetrahydropyrimidines together with an increasing spread of AR of P. equorum against macrocyclic lactones urgently require epidemiologically appropriate deworming approaches. The introduction of a selective (targeted) anthelmintic treatment schedule (SAT) in various European countries has revealed a series of new and most promising insights and scientific findings as presented in this overview: Since the introduction of SAT – mostly only about 5-6 years ago - already thousands of horses on hundreds of farms participate in this system in various countries incl. Germany, the Netherlands, Danmark, Sweden, Switzerland, etc., representing thus a very high compliance for such a treatment schedule. This high degree of compliance is particularly also important for two reasons: 1) It reflects a willingness of horse owners and vets for pre-treatment parasitological exams and 2) these exams are the basis and clearly manifest their readiness for an evidence-based, parasite-specific anthelmintic intervention. The SAT approach is fully in line with

0737-0806/$ – see front matter.

the two published EU - directives (2001, 2006) which aim at performing diagnostic steps before treatment and reducing the use of drugs. Highly relevant are the findings that on average more than 40% of adult horses (≥4 years) either do not show any strongyle egg output at all, or egg counts below the defined treatment threshold level of 200 EpG, i. e. the number of anthelmintic treatments could be significantly reduced. On some farms the reduction was more than 60% when compared to the previous strategic treatment schedules, since only those horses are treated which considerably contribute to the pasture contamination. Furthermore, the number of horses which had to be treated in the 2nd year of SAT - according to the threshold level – significantly decreased in a specifically designed study, suggesting that the number of treatments can possibly be further reduced with time. An appropriate SAT procedure includes at the same time the evaluation of the prevalence of Strongylus vulgaris and the status of AR, resp. In-depth spectrum analyses in Germany and Switzerland revealed S. vulgaris prevalences of < 2%. Preliminary results show that horses < 4 years cannot be treated according to the same schedule. However, preliminary data from monitoring programs on stud/foal keeping farms provide some indications that a SAT approach might be possible when considering a different threshold level, the occurrence of P. equorum and the additional work for sample collection. Analyzing more than 2500 fecal samples from 303 horses has clearly shown the existence of a repeatability of fecal egg counts (FEC) over time by the identification of so-called high and low egg-shedders. Statistical analyses have proven a significant within-horse-repeatability. This further supports the idea that FECs can be used as a solid basis for resulting treatment decisions in adult horses.

078
Parasite control on thoroughbred studs

C. Hallowell-Evans*[1], J. Matthews [2], D. Archer [3], J. Hodgkinson [1]
[1] *Department of Infection Biology, University of Liverpool, Liverpool, UK;* [2] *Moredun Research Institute, Pentlands Science Park, Edinburgh, Scotland;* [3] *Phillip Leverhulme Equine Hospital, University of Liverpool, School of Veterinary Science – Leahurst Campus, Cheshire, UK*

Intestinal nematode infections can result in substantial impact on health, welfare and performance of Thoroughbreds (TB). Amongst these parasites are the cyathostomins, immunity to which is incomplete and Parascaris equorum, which can cause severe disease in youngstock; meaning life-long nematode control is required in horses. Control is primarily achieved by anthelmintic administration but decades of intensive anthelmintic usage, whilst reducing prevalence of some parasites (e.g Strongylus vulgaris) has promoted widespread resistance; particularly in cyathostomins and Parascaris equorum. The aim of this project is to identify parasite control practices on TB studs within the UK, assess comparative clinical impact between interval (intensive) and targeted (diagnostic based) deworming strategies and determine drug efficacy on a subset of TB studs. Nine TB studs have undergone in-depth interviews and bespoke drug efficacy testing based on their anthelmintic use, control strategies and clinical disease concerns. The centrifugal flotation faecal (CF) egg counting (FEC) technique, sensitive to 1 egg per gram (epg), was used to detect strongyle-type and P. equorum eggs. On studs where >10 animals showed >50epg (strongyle), faecal egg count reduction tests (FECRT) were performed using WAAVP guidelines to determine resistance status for pyrantel (PYR), <90% reduction, and ivermectin (IVM) and moxidectin (MOX), <95% reduction. Egg reappearance periods (ERP) were defined as when group arithmetic mean FEC post-treatment exceeded 10% of group FEC arithmetic mean pre-treatment when sampled weekly (stud B only) or fortnightly. Larval culture and morphological identification of strongyle third-stage larvae was performed from pre- and post-treatment samples. FECRT and ERP for all three major classes of anthelmintic; PYR, IVM and MOX were carried out on eight studs. Due to a high incidence of clinical disease on one stud, double centrifugal sugar flotation, CF and antibody detection ELISA tests were used to detect tapeworm (Anoplocephala perfoliata) infection. On stud B youngstock [YS] (n=7) PYR efficacy was 91.8%, ERP = 3 weeks, and in mares (n=8) mares it was 97.7%, ERP = 4 weeks; stud D only YS (n=31) were tested and showed resistance to PYR (reduction = 60%), sensitivity to IVM (99.98%) but borderline efficacy to MOX (94.57%; with ERP reduced to 4 weeks); on stud F resistance to PYR was detected (n=23 YS, n=13 mares) with reductions of -8.24% and 76.96% respectively, IVM and MOX efficacy were 100% but ERPs were shortened in YS to 6 weeks (IVM) and 8 weeks (MOX); stud G showed PYR resistance in YS (n=18, 47.42% reduction) and borderline in adults (93.39%, n=3). Studs H and J are under currently under analysis. Most YS show reduced FECRT compared to adults on the same farm for the same drug; ERP periods for all drugs were reduced, with the most concerning being reductions to 4 and 8 weeks for MOX on farms with historical intensive avermectin usage.

099
Evaluation of Baermann apparatus sedimentation time on recovery of third stage Cyathostominae, *Strongylus vulgaris* and *S. edentatus* larvae from equine coprocultures

J.L. Bellaw*[1], M.K. Nielsen [1]
[1] *M. H. Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky, Lexington, KY, USA*

Conventional diagnosis of equine Strongylinae infections requires culturing of eggs within feces to the infective, third larval stage for morphological identification. Standard protocols involve incubating the culture media for ~14 days and subsequently sedimenting for ~24 hours in a Baermann apparatus before harvesting larvae and morphologically identifying them under the microscope. This traditional method is plagued by low negative predictive values, and larval recovery rates are highly variable. This study evaluated the effect of 12, 24, and 48 hours of sedimentation time within a simple Baermann apparatus on larval recovery by collecting and examining the traditional sediment, “sediment 1,” and another sediment, “sediment 2”, obtained by centrifuging the usually discarded, remaining fluid contents of the same apparatus. Utilizing feces from two mares residing in the parasitology research herd at the University of Kentucky’s Maine Chance Farm, harboring a well described gastrointestinal parasite community, 45 coprocultures were performed. This yielded 90 total sediment samples, and a grand total of 147,482 larvae were recovered and examined. Duration of sedimentation did not significantly influence total larval recovery. Significantly more Cyathostominae and Strongylus vulgaris larvae were recovered from sediment 1 at all durations of sedimentation, comprising ~70% and ~95%, of total recovered larvae, respectively. Thus, the need for collection and examination of the remaining fluid contents of the Baermann apparatus is obviated when performing coprocultures for general Cyathostominae recovery or for diagnosis of S. vulgaris infections as increased sedimentation duration did not result in increased total larval recovery or a higher percentage of larvae recovered in sediment 1. However, less than 60% of all S. edentatus were recovered from